AMENDMENTS TO THE SPECIFICATION

A. At page 5, lines 24-28 delete the pending text and replace therewith as follows:

-- As shown, the micromechanical dispensing mechanisms 210, 212 possess inlets 213, 214 for receiving a fluid to be dispensed. The inlets 213, 214 are fluidly connected to channels 254, 255 that conduct fluid from the fluid reservoirs 220, 222 to the micromechanical dispensing mechanisms 210, 212. The fluid reservoirs 220, 222 are removably fluidly coupled to **channel** ports 226, 228 by means of the **reservoir** ports 223, 225 of fluid reservoirs 220, 222. -- .

B. At page 8, lines 4-21 delete the pending text and replace therewith as follows:

-- Additionally depicted in FIG. 2 is an optional orifice plate 295, further comprising an orifice 296. The optional orifice plate 295 is arranged such that fluid **271, 273** dispensed by at least one of the micromechanical dispensing mechanism 210, 212 is further dispensed through the orifice 296 **, which dispensing of the fluid 271, 273 through the orifice 296 is depicted in FIG. 2 by reference numbers 271a, 273a**.

In one embodiment, the optional orifice plate 295 is similar or identical to the orifice plate containing an orifice as depicted in FIG. 1 and described from col. 3, l. 57 to col. 4, l. 54 of U.S. Patent No. 6,378,780 to Edward J. Martens III et al., which patent is incorporated by reference herein, and which patent is hereinafter referred to as the "Martens patent" or simply as "Martens."

Referring still to FIG. 2, several embodiments of the micromechanical dispensing mechanisms 210, 212 are now described in accordance with the current invention.

In one embodiment, one or more of the micromechanical dispensing mechanisms 210, 212 comprises electrostatically-driven membranes **, which electrostatically-driven membranes are depicted in FIG. 2 by reference number 210a** . In one embodiment, for example, one or more of the present micromechanical dispensing mechanisms 210, 212 comprises a membrane that is similar or identical to the electrostatically-actuated diaphragm 10 of the fluid ejector 100 as described and depicted in the foregoing U.S. Patent No. 6,357,865 to Joel A. Kubby et al., which patent is incorporated herein by reference, and which patent is hereinafter referred to as the "Kubby patent" or simply "Kubby". -- .

C. At page 9, lines 9-15 delete the pending text and replace therewith as follows:

-- Referring again to the present FIG. 2, in a further embodiment, one or more of the micromechanical dispensing mechanisms 210, 212 comprises an electrostatically-actuated piston **, which electrostatically-actuated piston is depicted in FIG. 2 by reference number 210b** . In one embodiment, for example, one or more of the present micromechanical dispensing mechanisms 210, 212 comprises a piston that is similar or identical to the electrostatically-actuated piston 110 of the fluid ejector 100 as described in the foregoing U.S. Patent No. 6,367,915 to Arthur M. Gooray et al., which patent is incorporated by reference herein, and which patent is hereinafter referred to as the "Gooray '915 patent." -- .

D. At page 9, lines 32-34 delete the pending text and replace therewith as follows:

-- Again referring to the present FIG. 2, in another embodiment, one or more of the micromechanical dispensing mechanisms 210, 212 comprises magnetically-actuated membranes **, which magnetically-actuated membranes are depicted in FIG. 2 by reference number 210c** . -- .

E. At page 10, lines 30-32 delete the pending text and replace therewith as follows:

-- Referring again to the present FIG. 2, in another embodiment, one or more of the micromechanical dispensing mechanisms 210, 212 comprises a ballistic aerosol micromechanical dispensing mechanism **, which ballistic aerosol micromechanical dispensing mechanism is depicted in FIG. 2 by reference number 210d** . -- .

F. At page 11, lines 27-29 delete the pending text and replace therewith as follows:

-- Again referring to the present FIG. 2, in another embodiment, one or more of the micromechanical dispensing mechanisms 210, 212 comprises an arrangement incorporating a thermally-actuated paddle vane **, which thermally-actuated paddle vane is depicted in FIG. 2 by reference number 210e** . -- .

G. From page 15, line 33 to page 16, line 5 delete the pending text and replace therewith as follows:

-- The micromechanical dispensing mechanisms 410, 411, 412 possess inlets 413, 414, 415 for receiving a fluid to be dispensed. The inlets 413, 414, 415 are fluidly connected to channels 454, 455, 456 that conduct fluid from fluid reservoirs 420, 421, 422 to micromechanical dispensing mechanisms 410, 411, 412. The fluid reservoirs 420, 421, 422 are removably fluidly coupled to **channel** ports 426, 427, 428 by means of the **reservoir** port coupling mechanisms 423, 424, 425 of the fluid reservoirs 420, 421, 422. One skilled in the art is familiar with a variety of means to construct a removable fluid reservoir. -- .

H. From page 16, line 30 to page 17, line 16 delete the pending text and replace therewith as follows:

-- In one embodiment of the micromechanical dispensing device 400, one or more of the micromechanical dispensing mechanisms 410, 411, 412, comprises an electrostatically-driven membrane **, which electrostatically-driven membrane is depicted in FIG. 4 by reference numbers 410a, 411a and which is** substantially similar, or identical to the electrostatically-driven membrane described in the foregoing Kubby patent **as described in connection with FIG. 2 hereinabove** .

In another embodiment of the micromechanical dispensing device 400, one or more of the micromechanical dispensing mechanisms 410, 411, 412, comprises an electrostatically-actuated piston **, which electrostatically-actuated piston is depicted in FIG. 4 by reference numbers 410b, 411b and which is** substantially similar, or identical to the electrostatically-actuated piston described in the foregoing Gooray '915 patent **as described in connection with FIG. 2 hereinabove** .

In a further embodiment of the micromechanical dispensing device 400, one or more of the micromechanical dispensing mechanisms 410, 411, 412, comprises a magnetically-actuated membrane **, which magnetically-actuated membrane is depicted in FIG. 4 by reference numbers 410c, 411c and which is** substantially similar, or identical to the magnetically-actuated membrane described in the foregoing Genovese patent **as described in connection with FIG. 2 hereinabove**.

In a further embodiment of the micromechanical dispensing device 400, one or more of the micromechanical dispensing mechanisms 410, 411, 412, comprises a thermally-actuated paddle vane **, which thermally-actuated paddle vane is depicted in FIG. 4 by reference numbers 410e, 411e and which is** substantially similar, or identical to the thermally-actuated paddle-vane described in the foregoing Silverbrock patent **as described in connection with FIG. 2 hereinabove**.

In yet a further embodiment one of the micromechanical dispensing device 400, or more of the micromechanical dispensing mechanisms 410, 411, 412, comprises a ballistic aerosol dispensing mechanism **, which ballistic aerosol dispensing**

mechanism is depicted in FIG. 4 by reference numbers 410d, 411d and which is substantially similar, or identical to the ballistic aerosol dispensing mechanism described in the foregoing Peeters '718 patent **as described in connection with FIG. 2 hereinabove**. -- .

I. From page 18, line 32 to page 19, line 2 delete the pending text and replace therewith as follows:

-- Additionally depicted in FIG. 4 is an optional orifice plate 495, further comprising an orifice 496. The optional orifice plate 495 is arranged such that fluid **471, 472, 473** dispensed by at least one of the micromechanical dispensing mechanisms 410, 411, 412 is further dispensed through the orifice 496 **, which dispensing of the fluid 471, 472, 473 through the orifice 496 is depicted in FIG. 4 by reference numbers 471a, 472a, 473a**. -- .

J. From page 21, line 28 to page 22, line 2 delete the pending text and replace therewith as follows:

-- The micromechanical dispensing mechanism 610 possess an inlet 613 for receiving fluids to be dispensed by means of channel 611-611'. The channel 611-611' is fluidly connected to the exit of valve 665. The valve 665 selectively couples fluid reservoirs 620, 621, 622 to dispensing mechanism 610 as described in more detail below. The channel 612 conducts fluid from fluid reservoirs 620, 621, 622 to the entrance of valve 665. The channel 612 is fluidly connected to **channel** ports 626, 627, 628. The **channel** ports 626, 627, 628 provide removable fluid coupling to the fluid reservoirs 620, 621, 622 by means of **reservoir** ports 623, 624, 625 of the fluid reservoirs 620, 621, 622. -- .

K. At page 23, lines 4-23 delete the pending text and replace therewith as follows:

-- In one embodiment of the micromechanical dispensing device 600, the micromechanical dispensing mechanism 610 comprises an electrostatically-driven membrane **, which electrostatically-driven membrane is depicted in FIG. 6 by reference number 610a and which is** substantially similar, or identical to the electrostatically-driven membrane described in the foregoing Kubby patent **as described in connection with FIG. 2 hereinabove**.

In another embodiment of the micromechanical dispensing device 600 the micromechanical dispensing mechanism 610 comprises an electrostatically-actuated piston **, which electrostatically-actuated piston is depicted in FIG. 6 by reference number 610b and which is** substantially similar, or identical to the electrostatically-actuated piston described in the foregoing Gooray '915 patent **as described in connection with FIG. 2 hereinabove**.

In a further embodiment of the micromechanical dispensing device 600 the micromechanical dispensing mechanism 610 comprises a magnetically-actuated membrane **, which magnetically-actuated membrane is depicted in FIG. 6 by reference number 610c and which is** substantially similar, or identical to the magnetically-actuated membrane described in the foregoing Genovese patent **as described in connection with FIG. 2 hereinabove**.

In a further embodiment of the micromechanical dispensing device 600 the micromechanical dispensing mechanism 610 comprises a thermally-actuated paddle vane **, which thermally-actuated paddle vane is depicted in FIG. 6 by reference number 610e and which is** substantially similar, or identical to the thermally-actuated paddle-vane described in the foregoing Silverbrook patent **as described in connection with FIG. 2 hereinabove**.

In yet a further embodiment of the micromechanical dispensing device 600 the micromechanical dispensing mechanism 610 comprises a ballistic aerosol dispensing mechanism **, which ballistic aerosol dispensing mechanism is depicted in FIG. 6 by reference number 610d and which is** substantially similar, or identical to the

ballistic aerosol dispensing mechanism described in the foregoing Peeters '718 patent **as described in connection with FIG. 2 hereinabove**. -- .

L. At page 25, lines 4-6 delete the pending text and replace therewith as follows:

-- Additionally depicted in FIG. 6 is an optional orifice plate 695, further comprising an orifice 696. The optional orifice plate 695 is arranged such that fluid **671, 672, 673** dispensed by the micromechanical dispensing mechanism 610 is further dispensed through the orifice 696 **, which dispensing of the fluid 671, 672, 673 through the orifice 696 is depicted in FIG. 6 by reference numbers 671a, 672a, 673a** . -- .

M. At page 25, lines 15-19 delete the pending text and replace therewith as follows:

-- The micromechanical dispensing mechanisms 710, 711, 712 possess inlets 713, 714, 715 for receiving fluids to be dispensed. The inlets 713, 714, 715 are fluidly connected to the channel 754 that conducts fluid from the fluid reservoir 720 to the micromechanical dispensing mechanisms 710, 711, 712. The fluid reservoir 720 is removably fluidly coupled to **channel** port 726 by means of the **reservoir** port 723 of the fluid reservoir 720. -- .

N. At page 26, lines 11-30 delete the pending text and replace therewith as follows:

-- In one embodiment of the micromechanical dispensing device 700, one or more of the micromechanical dispensing mechanisms 710, 711, 712 comprises an electrostatically-driven membrane **, which electrostatically-driven membrane is depicted in FIG. 7 by reference number 710a, 711a and which is** substantially similar, or identical to the electrostatically-driven membrane described in the foregoing Kubby patent **as described in connection with FIG. 2 hereinabove**.

In another embodiment of the micromechanical dispensing device 700, one or more of the micromechanical dispensing mechanisms 710, 711, 712 comprises an electrostatically-actuated piston **, which electrostatically-actuated piston is depicted in FIG. 7 by reference number 710b, 711b and which is** substantially similar, or identical to the electrostatically-actuated piston described in the foregoing Gooray '915 patent **as described in connection with FIG. 2 hereinabove**.

In a further embodiment of the micromechanical dispensing device 700, one or more of the micromechanical dispensing mechanism 710, 711, 712 comprises a magnetically-actuated membrane **, which magnetically-actuated membrane is depicted in FIG. 7 by reference number 710c, 711c and which is** substantially similar, or identical to the magnetically-actuated membrane described in the foregoing Genovese patent **as described in connection with FIG. 2 hereinabove**.

In a further embodiment of the micromechanical dispensing device 700, one or more of the micromechanical dispensing mechanisms 710, 711, 712 comprises a thermally-actuated paddle vane **, which thermally-actuated paddle vane is depicted in FIG. 7 by reference number 710e, 711e and which is** substantially similar, or identical to the thermally-actuated paddle-vane described in the foregoing Silverbrook patent **as described in connection with FIG. 2 hereinabove**.

In yet a further embodiment of the micromechanical dispensing device 700, one or more of the micromechanical dispensing mechanisms 710, 711, 712 comprises a ballistic aerosol dispensing mechanism **, which ballistic aerosol dispensing mechanism is depicted in FIG. 7 by reference number 710d, 711d and which is** substantially similar, or identical to the ballistic aerosol dispensing mechanism described in the foregoing Peeters '718 patent **as described in connection with FIG. 2 hereinabove**. -- .

O. At page 28, lines 13-16 delete the pending text and replace therewith as follows:

-- Additionally depicted in FIG. 7 is an optional orifice plate 795, further comprising an orifice 796. The optional orifice plate 795 is arranged such that fluid 771

dispensed by one or more of the micromechanical dispensing mechanisms 710, 711, 712 is further dispensed through the orifice 796 **, which dispensing of the fluid 771 through the orifice 796 is depicted in FIG. 7 by reference number 771a**. -- .

P. From page 28, line 21 to page 33, line 24 delete the pending text and replace therewith as follows:

-- TABLE

Number:	Description:
100	dispenser
200	a micromechanical device to dispense one or more fluids into an atmosphere
210	micromechanical dispensing mechanism
210a	**electrostatically-driven membrane**
210b	**electrostatically-actuated piston**
210c	**magnetically-actuated membrane**
210d	**ballistic aerosol dispensing mechanism**
210e	**thermally-actuated paddle vane**
212	micromechanical dispensing mechanisms
213	inlet
214	inlets
220	fluid reservoir
222	fluid reservoirs
223	**reservoir** port
225	**reservoir** ports
226	**channel** port
228	**channel** ports
231	communication path
232	communication path
233	communication path

234	control interface
235	sensor signal
240	micromechanical dispensing device controller
251	check valve
253	check valves
254	channel
255	channels
260	sensor
261	communication path
262	sensor communication interface
263	sensor signal
271	fluid
271a	fluid 271 being dispensed through the orifice 296
273	fluids
273a	fluids 273 being dispensed throgh the orifice 296
280	atmospheric substance
290	disperion pad
291	gap
291'	gap
295	orifice plate
296	orifice
300	system for dispensing fluids
310	system controller
313	communication interface
330	system sensor
340	communication means
341	communication path
342	communication path
343	communication path
344	communication path

345	system sensor signal
350	atmospheric substance
360	fluid
400	a micromechanical device to dispense a plurality of fluids into an atmosphere
410	micromechanical dispensing device
410a	electrostatically-driven membrane
410b	electrostatically-actuated piston
410c	magnetically-actuated membrane
410d	ballistic aerosol dispensing mechanism
410e	thermally-actuated paddle vane
411	micromechanical dispensing device
411a	electrostatically-driven membrane
411b	electrostatically-actuated piston
411c	magnetically-actuated membrane
411d	ballistic aerosol dispensing mechanism
411e	thermally-actuated paddle vane
412	micromechanical dispensing devices
413	inlet
414	inlet
415	inlets
420	fluid reservoir
421	fluid reservoir
422	fluid reservoirs
423	reservoir port
424	reservoir port
425	reservoir ports
426	channel port
427	channel port
428	channel ports

431	communication path
432	communication path
433	communication path
434	control interface
435	sensor signal
440	micromechanical dispensing device controller
451	check valve
452	check valve
453	check valves
454	channel
455	channel
456	channels
460	sensor
461	communication path
462	sensor communication interface
463	sensor signal
471	fluid
471a	**fluid 471 being dispensed through the orifice 496**
472	fluid
472a	**fluid 472 being dispensed through the orifice 496**
473	fluids
473a	**fluids 473 being dispensed through the orifice 496**
480	atmospheric substance
490	dispersion pad
491	gap
491'	gap
495	orifice plate
496	orifice
500	system for dispensing fluids
510	system controller

513	communication interface
530	system sensor
540	communication means
541	communication path
542	communication path
543	communication path
544	communication path
545	system sensor signal
550	atmospheric substance
560	fluid
600	a micromechanical device to dispense one or more fluids into an atmosphere
610	micromechanical dispensing mechanism
610a	electrostatically-driven membrane
610b	electrostatically-actuated piston
610c	magnetically-actuated membrane
610d	ballistic aerosol dispensing mechanism
610e	thermally-actuated paddle vane
611	channel
611'	channel
612	channel
613	inlet
620	fluid reservoir
621	fluid reservoirs
622	fluid reservoir
623	reservoir port
624	reservoir ports
625	reservoir port
626	channel port
627	channel ports

628	channel port
631	communication path
632	communication path
633	communication path
634	dispenser control interface
635	sensor signal
637	communication path
640	micromechanical dispensing device controller
651	check valve
652	check valves
653	check valve
660	sensor
661	communication path
662	sensor communication interface
663	sensor signal
665	valve
670	mixing chamber
671	fluid
671a	fluid 671 being dispensed through the orifice 696
672	fluids
672a	fluids 672 being dispensed through the orifice 696
673	fluid
673a	fluid 673 being dispensed through the orifice 696
680	atmospheric substance
690	dispersion pad
691	gap
691'	gap
695	orifice plate
696	orifice
700	a micromechanical device to dispense a fluid into an

	atmosphere
710	micromechanical dispensing mechanism
710a	electrostatically-driven membrane
710b	electrostatically-actuated piston
710c	magnetically-actuated membrane
710d	ballistic aerosol dispensing mechanism
710e	thermally-actuated paddle vane
711	micromechanical dispensing mechanism
711a	electrostatically-driven membrane
711b	electrostatically-actuated piston
711c	magnetically-actuated membrane
711d	ballistic aerosol dispensing mechanism
711e	thermally-actuated paddle vane
712	micromechanical dispensing mechanisms
713	inlet
714	inlet
715	inlets
720	fluid reservoir
723	reservoir port
726	channel port
731	communication path
732	communication path
733	communication path
734	dispenser control interface
735	sensor signal
740	micromechanical dispensing device controller
751	check valve
754	channel
760	sensor
761	communication path

762	sensor communication interface
763	sensor signal
771	fluid
771a	**fluid 771 being dispensed through the orifice 796**
780	atmospheric substance
790	dispersion pad
791	gap
791'	gap
795	orifice plate
796	orifice -- .

Q. From page 33, line 25 to page 40, line 34 delete the pending text and replace therewith as follows:

-- Thus, there has been described the first aspect of the invention **, generally as depicted in FIG. 2**, namely, a micromechanical dispensing device **(200)** to dispense one or more fluids **(271, 273)** into an atmosphere [[(200)]] , the micromechanical dispensing device (200) comprising one or more micromechanical dispensing mechanisms (210, 212), each micromechanical dispensing mechanism of the one or more micromechanical dispensing mechanisms (210, 212) fluidly connected to a corresponding fluid reservoir (220, 222); the micromechanical dispensing device (200) further comprising a micromechanical dispensing device controller (240), the micromechanical dispensing device controller (240) arranged to communicate with each micromechanical dispensing mechanism of the one or more micromechanical dispensing mechanisms (210, 212).

In one embodiment, the micromechanical dispensing device **(200)** to dispense one or more fluids **(271, 273)** into an atmosphere [[(200)]] further comprises at least one port (226, 228) to which the corresponding fluid reservoir (220, 222) may be removably, fluidly connected.

In another embodiment, in the micromechanical dispensing device (200) to dispense one or more fluids (271, 273) into an atmosphere [[(200)]] , at least one micromechanical dispensing mechanism of the one or more micromechanical dispensing mechanisms (210, 212) further comprises an electrostatically-driven membrane (210a), an electrostatically-actuated piston (210b), a magnetically-actuated membrane (210c), a thermally-actuated paddle vane (210e) or a ballistic aerosol dispensing mechanism (210d).

In one embodiment, in the micromechanical dispensing device (200) to dispense one or more fluids (271, 273) into an atmosphere [[(200)]], at least one fluid reservoir (220, 222) contains a fluid (271 , 273), the fluid comprising a perfume, pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In another embodiment, the micromechanical dispensing device to dispense one or more fluids (271, 273) into an atmosphere [[(200)]] further comprises a sensor (260), the sensor (260) arranged to form a sensor signal (235) responsive to an atmospheric substance (280), and to communicate the sensor signal (235) to the micromechanical dispensing device controller (240).

In a further embodiment, in the micromechanical dispensing device (200) to dispense one or more fluids (271, 273) into an atmosphere 200, the atmospheric substance (280) is a fluid (271 , 273) that has been dispensed by the micromechanical dispensing device (200) to dispense one or more fluids into an atmosphere [[(200)]].

In one embodiment, in the micromechanical dispensing device (200) to dispense one or more fluids (271, 273) into an atmosphere (200), the micromechanical dispensing device controller (240) is arranged to actuate at least one of the one or more micromechanical dispensing mechanisms (210, 212) in response to the sensor signal (235).

In another embodiment, the micromechanical dispensing device (200) to dispense one or more fluids (271, 273) into an atmosphere [[(200)]] further comprises one or more check valves (251, 253), wherein each of the one or more check valves (251, 253) is interposed between a corresponding micromechanical

dispensing mechanism (210, 212) from amongst the one or more micromechanical dispensing mechanisms (210, 212) and the corresponding fluid reservoir (220, 222) of the corresponding micromechanical dispensing mechanism (210, 212).

In one embodiment, the micromechanical dispensing device **(200)** to dispense one or more fluids **(271, 273)** into an atmosphere [[(200)]] further comprises a dispersion pad (290), wherein the dispersion pad (290) is arranged to receive at least one fluid (271 , **273**) dispensed into the atmosphere by at least one of the one or more micromechanical dispensing mechanisms (210, 212), wherein the dispersion pad (290) comprises porous ceramics, celluloseic fibers, flax, cotton, wood, protein-based fibers, wool, animal hides, nylon, polyester or olefinic fibers.

In another embodiment, the micromechanical dispensing device **(200)** to dispense one or more fluids **(271, 273)** into an atmosphere [[(200)]] further comprises an orifice plate (295), the orifice plate (295) comprising an orifice (296), the orifice plate (295) arranged such that at least one fluid of the one or more fluids (271 , **273**) dispensed by at least one of the one or more micromechanical dispensing mechanisms (210, 212) is further dispensed **(271a, 273a)** through the orifice (296).

Thus, there has been described the second aspect of the invention **, generally as depicted in FIG. 3**, namely, a system **(300)** to dispense a plurality of fluids into an atmosphere [[(300)]], the system (300) comprising a micromechanical dispensing device (200), the micromechanical dispensing device (200) comprising one or more micromechanical dispensing mechanisms (210, 212), each micromechanical dispensing mechanism of the one or more micromechanical dispensing mechanisms (210, 212) fluidly connected to a corresponding fluid reservoir (220, 222); the micromechanical dispensing device (200) further comprising a micromechanical dispensing device controller (240), the micromechanical dispensing device controller (240) arranged to communicate with each micromechanical dispensing mechanism of the one or more micromechanical dispensing mechanisms (210, 212); the system further comprising at least one other dispensing device (100, 200, 400, 600, 700), and a system controller (310), the system controller (310) arranged to communicate with the micromechanical

dispensing device (200) and with each of the at least one other dispensing devices (100, 200, 400, 600, 700).

In one embodiment, in the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]], at least one of the one or more micromechanical dispensing mechanisms (210, 212) of the micromechanical dispensing device (200), further comprises an electrostatically-driven membrane (210a), an electrostatically-actuated piston (210b), a magnetically-actuated membrane (210c), a thermally-actuated paddle vane (210e) or a ballistic aerosol dispensing mechanism (210d).

In another embodiment, in the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]] , at least one fluid reservoir (220, [[221]] 222) contains a fluid (271, 273), the fluid comprising a perfume, a pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In one embodiment, the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]] is arranged to dispense at least one of the plurality of fluids (271 , 273) by the micromechanical dispensing device (200) and to dispense at least one other of the plurality of fluids (360) by the at least one other dispensing device (100, 200, 400, 600, 700).

In another embodiment, the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]] further comprises a system sensor (330), the system sensor (330) arranged to form a system sensor signal (345) responsive to an atmospheric substance (350) and to communicate the system sensor signal (345) to the system controller (310).

In a further embodiment, in the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]], the system controller is arranged to actuate at least one of the micromechanical dispensing device (200) and the at least one other dispensing device (100, 200, 400, 600, 700, 800) in response to the system sensor signal (345).

In one embodiment, in the system (300) to dispense a plurality of fluids into an atmosphere [[(300)]], the micromechanical dispensing device (200) further comprises a sensor (260), the sensor (260) arranged to form a sensor signal (263) responsive to

the atmospheric substance (350) and to communicate the sensor signal (263) to the system controller (310).

In a further embodiment, in the system **(300)** to dispense a plurality of fluids into an atmosphere [[(300)]], the system controller (310) is arranged to actuate at least one of the micromechanical dispensing device (200) and the at least one other dispensing device (100, 200, 400, 600, 700, 800) in response to the sensor signal (263).

In one embodiment, the system **(300)** to dispense a plurality of fluids into an atmosphere [[(300)]], further comprises a communication means (340), the communication means comprising a network (340).

In another embodiment, in the system **(300)** to dispense a plurality of fluids into an atmosphere [[(300)]], the network (340) comprises a wireless network (340).

Thus, there has been described the third aspect of the invention **, generally as depicted in FIG. 4**, namely, a micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , the micromechanical dispensing device (400) comprising a plurality of micromechanical dispensing mechanisms (410, 411, 412), each micromechanical dispensing mechanism of the plurality of micromechanical dispensing mechanisms (410, 411, 412) fluidly connected to a corresponding fluid reservoir (420, 421, 422); the micromechanical dispensing device (400) further comprising a micromechanical dispensing device controller (440), the micromechanical dispensing device controller (440) arranged to communicate with each micromechanical dispensing mechanism of the plurality of micromechanical dispensing mechanisms (410, 411, 412).

In one embodiment, the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] further comprises at least one port (426, 427, 428) to which the corresponding fluid reservoir (420, 421, 422) may be removably, fluidly connected.

In one embodiment, in the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , at least one micromechanical dispensing mechanism of the plurality of micromechanical

dispensing mechanisms (410, 411, 412) further comprises an electrostatically-driven membrane **(410a, 411a)**, an electrostatically-actuated piston **(410b, 411b)**, a magnetically-actuated membrane **(410c, 411c)**, a thermally-actuated paddle vane **(410e, 411e)** or a ballistic aerosol dispensing mechanism **(410d, 411d)**.

In another embodiment, the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] further comprises a fluid (471, 472**, 473**), the fluid comprising a perfume, pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In one embodiment, the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , further comprises a sensor (460), the sensor (460) arranged to form a sensor signal (435) responsive to an atmospheric substance (480) and to communicate the sensor signal (435) to the micromechanical dispensing device controller (440).

In one embodiment, in the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , the atmospheric substance **(480)** to which the sensor signal (435) is responsive is a fluid (471, 472**, 473**) that has been dispensed by the micromechanical dispensing device **(400)** to dispense a plurality of fluids into an atmosphere [[(400)]] .

In one embodiment, in the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , the micromechanical dispensing device controller (440) is arranged to actuate at least one of the plurality of micromechanical dispensing mechanisms (410, 411, 412) in response to the sensor signal (435).

In another embodiment, the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472, 473)** into an atmosphere [[(400)]] , further comprises at least one check valve (451, 452, 453) interposed between at least one of the plurality of micromechanical dispensing mechanisms (410, 411, 412) and its corresponding fluid reservoir (420, 421, 422).

In one embodiment, the micromechanical dispensing device **(400)** to dispense a plurality of fluids **(471, 472 , 473)** into an atmosphere [[(400)]] , further comprises a

dispersion pad (490), wherein the dispersion pad (490) is arranged to receive at least one fluid (471, 472, 473) dispensed into the atmosphere by at least one of the plurality of micromechanical dispensing mechanisms (410, 411, 412), wherein the dispersion pad (490) comprises porous ceramics, celluloseic fibers, flax, cotton, wood, protein-based fibers, wool, animal hides, nylon, polyester or olefinic fibers.

In one embodiment, the micromechanical dispensing device (400) to dispense a plurality of fluids (471, 472, 473) into an atmosphere [[(400)]] , further comprises an orifice plate (495), the orifice plate (495) comprising an orifice (496), the orifice plate (495) arranged such that at least one fluid of the plurality of fluids (471, 472, 473) dispensed by at least one of the plurality of micromechanical dispensing mechanisms (410, 411, 412) is further dispensed (471a, 472a, 473a) through the orifice (496).

Thus, there has been described the fourth aspect of the invention , generally as depicted in FIG. 5, namely, a system (500) to dispense a plurality of fluids into an atmosphere [[(500)]], the system (500) comprising a micromechanical dispensing device (400), the micromechanical dispensing device (400) comprising a plurality of micromechanical dispensing mechanisms (410, 411, 412), each micromechanical dispensing mechanism of the plurality of micromechanical dispensing mechanisms (410, 411, 412) fluidly connected to a corresponding fluid reservoir (420, 421, 422); the micromechanical dispensing device (400) further comprising a micromechanical dispensing device controller (440), the micromechanical dispensing device controller (440) arranged to communicate with each micromechanical dispensing mechanism of the plurality of micromechanical dispensing mechanisms (410, 411, 412); and the system further comprising a system controller (510), the system controller (510) arranged to communicate with the micromechanical dispensing device (400).

In one embodiment, in the system (500) to dispense a plurality of fluids into an atmosphere [[(500)]], at least one of the plurality of micromechanical dispensing mechanisms (410, 411, 412) of the micromechanical dispensing device (400), further comprises an electrostatically-driven membrane (410a, 411a), an electrostatically-actuated piston (410b, 411b), a magnetically-actuated membrane (410c, 411c), a

thermally-actuated paddle vane **(410e, 411e)** or a ballistic aerosol dispensing mechanism **(410d, 411d)**.

In one embodiment, in the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]], at least one fluid reservoir (420, 421 , **422**) of the micromechanical dispensing device (400) contains a fluid (471, 472 , **473**), the fluid comprising a perfume, pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In one embodiment, the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]], further comprises a second dispenser to dispense one or more fluids into an atmosphere (100, 200, 400, 600, 700), the second dispenser (100, 200, 400, 600, 700), arranged to communicate with the system controller 510, wherein at least one fluid reservoir (420, 421 , **422**) of the micromechanical dispensing device (400) contains a first fluid (471, 472 , **473**) and the second dispenser (100, 200, 400, 600, 700).contains a second fluid (560) which is different from the first fluid (471, 472 , **473**).

In one embodiment, the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]] further comprises a system sensor (530), the system sensor (530) arranged to form a system sensor signal (545) responsive to an atmospheric substance (550) and to communicate the system sensor signal (545) to the system controller (510).

In a further embodiment, in the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]], the system controller (510) is arranged to actuate the micromechanical dispensing device (400) in response to the system sensor signal (545).

In one embodiment, in the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]], the micromechanical dispensing device (400) further comprises a sensor (460), the sensor (460) arranged to form a sensor signal (463) responsive to an atmospheric substance (480) and to communicate the sensor signal (463) to the system controller (510).

In a further embodiment, in the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]] the system controller (510) is arranged to actuate the micromechanical dispensing device (400) in response to the sensor signal (463).

In one embodiment, the system **(500)** to dispense a plurality of fluids into an atmosphere [[(500)]] further comprises a communication means (540), the communication means comprising a wireless network (540).

Thus, there has been described the fifth aspect of the invention **, generally as depicted in FIG. 6**, namely, a micromechanical dispensing device **(600)** to dispense one or more fluids **(671, 672, 673)** into an atmosphere [[(600)]], the micromechanical dispensing device (600) comprising a micromechanical dispensing mechanism (610), the micromechanical dispensing mechanism (610) fluidly connected to a plurality of fluid reservoirs (620, 621, 622); and further comprising a valve (665), the valve arranged to selectively couple each fluid reservoir of the plurality of fluid reservoirs (620, 621, 622) to the micromechanical dispensing mechanism (610); and, the micromechanical dispensing device (600) further comprising a micromechanical dispensing device controller (640), the micromechanical dispensing device controller (640) arranged to communicate with the micromechanical dispensing mechanism (610) and the valve (665).

In one embodiment, in the micromechanical dispensing device **(600)** to dispense one or more fluids **(671, 672, 673)** into an atmosphere [[(600)]], the micromechanical dispensing mechanism (610) further comprises an electrostatically-driven membrane **(610a)**, an electrostatically-actuated piston **(610b)**, a magnetically-actuated membrane **(610c)**, a thermally-actuated paddle vane **(610e)** or a ballistic aerosol dispensing mechanism **(610d)**.

In one embodiment, in the micromechanical dispensing device **(600)** to dispense one or more fluids **(671, 672, 673)** into an atmosphere [[(600)]], at least one fluid reservoir (620 **, 621**, 622) contains a fluid (671, 672 **, 673**), the fluid comprising a perfume, pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In one embodiment, the micromechanical dispensing device **(600)** to dispense one or more fluids **(671, 672, 673)** into an atmosphere [[(600)]], further comprises a sensor (660), the sensor (660) arranged to form a sensor signal (636) responsive to an atmospheric substance (680) and to communicate the sensor signal (636) to the micromechanical dispensing device controller (640), and the micromechanical dispensing device controller (640) is arranged to actuate the micromechanical dispensing mechanism (610) in response to the sensor signal (636).

In one embodiment, the micromechanical dispensing device **(600)** to dispense one or more fluids **(671, 672, 673)** into an atmosphere [[(600)]] , further comprises a mixing chamber (670), the mixing chamber (670) fluidly interposed between the micromechanical dispensing mechanism (610) and the plurality of fluid reservoirs (620, 621, 622).

Thus, there has been described the sixth aspect of the invention **, generally as depicted in FIG. 7**, namely, a micromechanical dispensing device **(700)** to dispense a fluid **(771)** into an atmosphere [[(700)]] the micromechanical dispensing device (700) comprising a plurality of micromechanical dispensing mechanisms (710, 711, 712), the plurality of micromechanical dispensing mechanisms (710, 711, 712) fluidly connected to a fluid reservoir (720); and, the micromechanical dispensing device (700) further comprising a micromechanical dispensing device controller (740), the micromechanical dispensing device controller (740) arranged to communicate with the plurality of micromechanical dispensing mechanisms (710, 711, 712).

In one embodiment, the micromechanical dispensing device **(700)** to dispense a fluid **(771)** into an atmosphere [[(700)]], further comprises a port (726) to which the fluid reservoir (720) may be removably, fluidly connected.

In one embodiment, in the micromechanical dispensing device **(700)** to dispense a fluid **(771)** into an atmosphere [[(700)]], at least one micromechanical dispensing mechanism (710, 711, 712) further comprises an electrostatically-driven membrane **(710a, 711a)**, an electrostatically-actuated piston **(710b, 711b)**, a magnetically-actuated membrane **(710c, 711c)**, a thermally-actuated paddle vane **(710e, 711e)** or a ballistic aerosol dispensing mechanism **(710d, 711d)**.

In one embodiment, the micromechanical dispensing device **(700)** to dispense a fluid **(771)** into an atmosphere [[(700)]] further comprises a fluid (771), the fluid comprising a perfume, pheromone, moisturizer, humectant, miticide, deodorizer, disinfectant, sanitizing agent or insecticide.

In one embodiment, the micromechanical dispensing device **(700)** to dispense a fluid **(771)** into an atmosphere [[(700)]] further comprises a sensor (760), the sensor (760) arranged to form a sensor signal (735) responsive to an atmospheric substance (780) and to communicate the sensor signal (735) to the micromechanical dispensing device controller (740), and the micromechanical dispensing device controller (740), is arranged to actuate the plurality of micromechanical dispensing mechanisms (710, 711, 712) in response to the sensor signal (735). -- .